

REMARKS

Entry of the foregoing and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.116 and in light of the remarks which follow, are respectfully requested.

By the above amendments, claims 21 and 22 have been canceled without prejudice or disclaimer. Claim 9 has been amended to recite that said chain extender comprises 2,2-dimethylolpropanic acid. Claim 18 has been amended to be in independent form and to recite various other aspects of the process for manufacturing the polyurethane. Support for such amendments can be found throughout the instant specification. Entry of the above amendments is proper at least because they are effective to place the application in condition for allowance or in better form for appeal. See 37 C.F.R. §1.116.

In the Official Action, claim 9 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Without addressing the propriety of this rejection, it is noted that claim 9 has been amended to recite that said chain extender comprises 2,2-dimethylolpropanic acid. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 1-3, 7-12, 16-20 and 23 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement for the reasons set forth at page 2 of the Official Action. Applicants' disclosure at page 3, lines 29-31 discusses the amount of water-miscible solvent, and in the following sentences (lines 32-33) discusses the amount of water in terms of the overall solid content. Thus, when such disclosure is taken as a whole, and upon a fair and complete reading of the specification, one skilled in the art would have appreciated that the amount of water-miscible solvent discussed in the specification is with respect to the overall solid content. Accordingly, withdrawal of the above §112, first paragraph, rejection is respectfully requested.

Claims 19-22 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement for the reasons set forth at pages 2-5 of the Official Action. Specifically, the Examiner has taken the position that the claims do not provide adequate teaching concerning the conditions that are effective to obtain polyurethanes possessing the claimed properties. Official Action at page 4.

Without addressing the propriety of the Examiner's comments, it is noted that the present rejection is moot in view of the above amendments in which claims 21-22 have been canceled, and claim 18 (from which claims 19 and 20 directly and indirectly depend) has been amended to be in independent form and to recite particular details concerning the polyurethane manufacturing process. Applicants submit that the process now recited in claim 18 can be effective to obtain a polyurethane having the claimed properties concerning the tensile modulus and glass transition or melting temperature. Accordingly, withdrawal of the above §112, first paragraph, rejection is respectfully requested.

Claims 1-3, 7-12 and 16-23 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,239,213 (*Ramanathan et al*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Independent claim 1 is directed to a process for manufacturing a polyurethane, and independent claim 18 is directed to a polyurethane manufactured by a process.

Concerning the present rejection under 35 U.S.C. §102, it is well established that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). For an anticipation to exist, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Ramanathan et al does not disclose each feature recited in independent claim 1, and as such fails to constitute an anticipation of such claim. For example, *Ramanathan et al* does not disclose: a) mixing a difunctional alcohol with a difunctional isocyanate to form a first mixture in the presence of not more than 30 weight percent, with respect to the overall solid content, of a water-miscible solvent having no reactive hydrogen; b) heating the first mixture; and c) adding a chain extender to the heated first mixture to form a second mixture, said chain extender containing a carboxylic acid group, as recited in claim 1.

In this regard, the Examiner has relied on column 5, lines 14-16 of *Ramanathan et al*, for disclosing that the branched polyester polyol, the ionic group bearing organic compound and the organic diisocyanate can be reacted simultaneously or sequentially to produce random or block copolymers. At page 6 of the Official Action, the Examiner has taken the position that the disclosed "sequential reaction" of *Ramanathan et al* corresponds to the claimed process. In this regard, *Ramanathan et al* discloses the sequential process in greater detail at column 2, lines 45-57:

Accordingly, the present invention provides a process for the preparation of aqueous polyurethane dispersions which comprises of preparing an isocyanate terminated carboxyl group containing prepolymer, by preparing a solution of a polyol in an organic solvent, adding an ionizable group containing compound to this solution, heating this mixture to a temperature ranging between 40°C. and 120°C., adding an isocyanate in this reaction mixture, either in the presence or absence of a catalyst depending upon the isocyanate, and stirring the mixture for a period ranging between 1 and 16 hours, neutralizing this mixture with a base, cooling the mixture to ambient temperature and dispersing the mixture in water to obtain the product.

As is apparent from the above disclosure, *Ramanathan et al* discloses adding an ionizable group containing compound to a solution of a polyol in an organic solvent, heating this mixture, and then adding an isocyanate in this reaction mixture. That is, *Ramanathan et al* discloses initially producing the heated reaction mixture of the ionizable group containing compound and the polyol, and then adding the isocyanate to such heated mixture. Such process

is clearly different from the claimed process, in which a difunctional alcohol is mixed with a difunctional isocyanate to form a first mixture which is then heated, and in which a chain extender containing a carboxylic acid group is then added to the heated first mixture. Quite clearly, the diisocyanate is employed at completely different steps of the processes, and the reaction mixture that is heated in the *Ramanathan et al* process is different from the first mixture heated in step b) of the claimed process.

As discussed in the instant specification at pages 5-6, while the reaction of NCO with a carboxylic group (COOH) can occur in an exemplary aspect of the claimed process, the reaction rate is generally slower than the reaction of NCO with OH in such process. This is due to the fact that, for example, the difunctional alcohol is first mixed with the difunctional isocyanate and then heated, and the chain extender is subsequently added to the heated first mixture. Accordingly to an exemplary aspect, by employing the order of steps specified in the claimed process, a polyurethane which exhibits a shape memory effect can be obtained which can be especially suitable for use, for example, as a finishing agent such as a wrinkle resistance finishing agent of textiles or garments. Quite clearly, the order in which the difunctional alcohol is mixed with the difunctional isocyanate, the resulting mixture is heated, and the chain extender is added, is quite meaningful to the polyurethane obtained from such process, and is effective to distinguish the claimed process from the process disclosed by *Ramanathan et al*.

Furthermore, claim 18 which is directed to a polyurethane, is not anticipated by *Ramanathan et al*. In this regard, *Ramanathan et al* fails to disclose the process for manufacturing the polyurethane recited in claim 18. As discussed above, for example, the differences in the claimed process and the process of *Ramanathan et al* result in polyurethanes which are different.

For at least the above reasons, it is apparent that *Ramanathan et al* fails to constitute an anticipation of the currently pending claims. Accordingly, withdrawal of the above rejection is respectfully requested.

Claims 21 and 22 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,270,433 (*Klauck et al*). Without addressing the propriety of the Examiner's comments in connection with this rejection, it is noted that such rejection is moot in view of the above cancellation of claims 21 and 22.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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